blets (n=529, 72%), particularly carboplatin-paclitaxel (n=285, 39%), accounted for most off-label GL concordant care. NCCN GL recommendations for carboplatin-based doublets are supported by phase III clinical trials. **CONCLUSIONS:** The majority of advanced NSCLC patients received first-line therapy that was concordant with NCCN GL recommendations but was outside the FDA labeled indication. These GL concordant, off-label uses are supported by high-level evidence including phase III clinical trials.

PCN122

MELODY BRAZIL: CHEMOTHERAPY CHOICES FOR PATIENTS WITH METASTATIC MELANOMA IN THE PUBLIC HEALTH CARE SYSTEM (SUS)

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OBJECTIVES: The aim of this study was to assess treatment choices for patients diagnosed with metastatic melanoma in SUS settings. **METHODS:** The patient flow pathway was determined by patients receiving systemic therapy for diagnosed melanoma stage IV (ICD-C43) from a government administrative database (SIA/DATASUS). Patients ineligible for upfront therapy could not be captured. Systemic therapy at each line treatment and time to progression data from Jan/2008 to Jun/2010 was collected. Patients were classified as active (analyzed during all period), lost during follow-up (unknown reason) and dead. **RESULTS:** Data from 1,049 patients was analyzed, 48.1% lost follow up and 8.3% had documented death. By the end of the study, 43.6% were still active. The average follow-up time was 8.6 months. All patients received at least one line of systemic therapy. First line therapy (FLT), 49.7% received dacarbazine and 29.1% interferon. By Jun/2010, 175 (16.7%) patients received second line therapy (SLT), 42.5% lost follow-up, 6.6% died and 34.2% remained in FLT. The most common SLT regimens were dacarbazine (28.0%), interferon (17.7%) and paclitaxel (14.9%) and the average time to switch from FLT to SLT was 5.5 months. During SLT, 28.0% lost follow-up, 7.4% died and 47.4% of patient remained active till jun/2010. Thirty patients (2.9%) received a third line therapy (TLT), with an average time from the beginning of SLT to TLT of 5.2 months. Paclitaxel (23.3%) and interferon (20.0%) were the most commonly used regimens. **CONCLUSIONS:** For metastatic melanoma patients in the SUS, the main chemotherapy regimens in FLT and SLT were dacarbazine and interferon. Paclitaxel was the most common TLT agent along with interferon.

PCN123

A SYSTEMATIC REVIEW OF TREATMENT GUIDELINES FOR METASTATIC COLORECTAL CANCER

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OBJECTIVES: The objective of this systematic review was to identify treatment guidelines for metastatic colorectal cancer (mCRC) and to assess guideline recommendations. **METHODS:** Publications were identified through electronic searches of MEDLINE, MEDLINE In Process, EMBASE and the Cochrane Library; through manual searches of the reference lists of relevant articles; and by searching websites on the Internet. The MEDLINE and EMBASE searches were limited to articles published in English, whereas the Cochrane library search had no language restrictions. **RESULTS:** A total of 1,633 citations/abstracts were identified from electronic database searches. Of these, 91 underwent full-paper review and 32 were included in the final analysis. In addition, 25 articles were identified from manual and website searches, giving a total of 57 guidelines. The guidelines were published between 1996 and 2010, with the majority published between 2004 and 2010. The country publishing the most guidelines was the USA (12), followed by the UK (10), Canada (8), France (8), Germany (3), Australia (2), Spain (2) and Italy (1). In addition, eight European and three International guidelines were identified. As monoclonal antibody therapy for mCRC was not introduced until 2004, no firm recommendations for monoclonal antibody therapy were made in guidelines published between 2004 and 2006. Recommendations for monoclonal antibody therapy first appeared in 2007 and evolved as more data became available. The most recent international, European, and US guidelines recommended combination chemotherapy with a monoclonal antibody for the first-line treatment of mCRC, while second-line treatment varied depending on the first-line regimen used. Cetuximab and panitumumab were recommended in patients with wild-type *KRAS* mCRC. **CONCLUSIONS:** The findings from this systematic review indicate that these recent treatment guidelines have recognized the role of monoclonal antibodies in the management of mCRC; and timely treatment guideline updates are necessary to reflect the most recently available data.

PCN124

CLINICAL AND DEMOGRAPHIC CHARACTERISTICS OF CHRONIC MYELOGENOUS LEUKEMIA PATIENTS TREATED AT PUBLIC ONCOLOGY CLINICS IN SÃO PAULO, BRAZIL

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OBJECTIVES: This study aims to describe clinical and demographic characteristics of chronic myelogenous leukemia (CML) patients receiving therapy on public cancer centers in São Paulo state, Brazil. **METHODS:** Cross-sectional analysis of São Paulo state CML-related pharmacy claims as reported in the Ambulatory Information System database. Patients were included if they have at least one claim with CML ICD-10 code during April 2010. Repeated records were excluded using identification code, age, sex, and diagnosis date as compatibility criteria. Kruskal-Wallis test was used to compare clinical and demographical variables and cost of treatment among patients receiving each protocol. **RESULTS:** 1,326 patients were identified as CML patients, 53.32% male with a mean age of 51.08 years (SD=17.07). The mean disease duration was 2.38 years (SD=3.02; range 0-21.27 years) for those patients for whom data was available (n=1,307). The proportion of patients receiving tyrosine kinase inhibitors (TKI) was 85.67% (imatinib=74.06%; dasatinib=8.82%; nilotinib=2.79%). Other reported therapeutic strategies were: hydroxyurea (7.24%), non specified oral cancer therapy (3.17%), chemotherapy protocols (0.75%), interferon (0.60%), and others (2.56%). Median age was significantly ($p<0.05$) different among hydroxyurea-treated patients (67 years), others (46 years), and chemotherapy (15 years) as compared to TKI, interferon and non specified oral drugs. Higher median disease duration was observed for nilotinib-treated patients (4.74 years), interferon (2.73), and dasatinib (2.31). The median disease duration of imatinib treated patients was 0.96 years ($p<0.05$ vs. all comparisons except hydroxyurea). The median cost of treatment ranged from 80 BRL to 6,678 BRL for hydroxyurea and nilotinib ($p<0.05$). **CONCLUSIONS:** Among this sample, the most frequent therapeutic approach for CML patients was TKI, particularly imatinib, but second-generation TKIs have also been prescribed for patients with significantly longer disease duration, which is consistent with current guidelines that recommend that they should be prescribed in later lines.

PCN125

MELODY BRASIL: TREATMENT PATTERNS AND ASSOCIATED COSTS OF METASTATIC MELANOMA PATIENTS IN THE BRAZILIAN PUBLIC HEALTH SYSTEM (SUS)

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OBJECTIVES: The aim of this study is to document treatment patterns of care and associated costs of metastatic melanoma in Brazil from the Public Health System (SUS) Perspective. **METHODS:** A review of a government administrative claims database (Outpatient Information System - SIA/DATASUS) was conducted from Jan 2008 to June 2010. Patients receiving radiotherapy and/or systemic therapy for diagnosed melanoma (International Code of Disease (ICD-10) C43) stage IV were included in the analysis. Information on type of treatment (chemotherapy, radiotherapy), chemotherapy scheme, length of treatment and associated costs (in 2010 USD) were collected. **RESULTS:** 2,488 patients met the inclusion criteria, 54.3% male with an average age (SD) of 56.3 (15.0) years. 42.2% lived in the Southeast region and 38.5% in the South. Less than 40% of the cases had the primary cancer site reported. Dacarbazine was the most widely used agent (administered to 1,700 patients), followed by interferon (1,059 patients) and cisplatin (435 patients). Dacarbazine monotherapy was the most commonly administered chemotherapy regimen (37.9% of the patients; average length of treatment of 3.1 months), followed by interferon monotherapy (30.1% of the patients; average length of treatment of 4.6 months) and paclitaxel monotherapy (3.5% of the patients; average length of treatment of 2.8 months). Overall cost of care expenses were USD16,238,160, 99% of the cost was attributable to chemotherapy (USD16,024,555). Total expenses in 2009 (USD6,667,687) increased 12% compared to 2008; interferon monotherapy accounted for 38.5% (USD6,245,742) of expenses, and dacarbazine monotherapy accounted for 32.2% (USD5,230,315). **CONCLUSIONS:** Patients with advanced melanoma, in the Brazilian Public Healthcare System (SUS), nearly all receive systemic therapy. Dacarbazine as single agent is the most common regimen, followed by interferon with a significant financial impact to the Public Healthcare System, totalizing USD16,238,160 in the last two and a half years.

Cancer – Research on Methods

PCN126

OVERVIEW OF PRIMARY ENDPOINTS, PROGRESSION-FREE SURVIVAL (PFS) AND OVERALL SURVIVAL (OS) FOR NON-SMALL CELL LUNG CANCER (NSCLC): THEIR VALUE IN TREATMENT DECISIONS AND PATIENT CARE

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OBJECTIVES: NSCLC (accounting for 80% of all cases of lung cancer) causes high morbidity and mortality. Various treatment lines are available for NSCLC, and there are ongoing discussions on the most appropriate measure of treatment efficacy for reimbursement decisions. We examined the use of these endpoints in NSCLC from a payers' perspective. **METHODS:** Targeted searches were conducted in MEDLINE® and the Cochrane Database of Reviews, using clinical and health economic-related key words and limited from 2000 to 2010. **RESULTS:** OS can be measured easily and accurately in terms of both event and time and is the endpoint preferred by regulatory bodies including the FDA and EMA. Over the last 10 years the benchmark OS for first-line treatment of NSCLC has risen and it is increasingly difficult to demonstrate significant OS benefit, as the efficacy (clinical trial results) of treatments has improved. Demonstrating improvements in OS over best supportive care is less challenging than against an active comparator. Adequate powering of studies to demonstrate OS benefit is vital but requires large study populations. Demonstrating a significant PFS benefit is also challenging, requiring frequent assessments, precise event definition and exact determination of the time of event. Nevertheless, PFS provides a well-accepted alternative endpoint to OS as

it is a direct measure of treatment effect on tumour burden and measures only the effect of the study drug. PFS has also been accepted by regulatory bodies as a measure of the efficacy of cancer treatments. **CONCLUSIONS:** OS is generally regarded as the preferable endpoint (from a payer's perspective) for demonstrating clinical efficacy in NSCLC. There are challenges, however, with demonstrating OS benefit of new therapies for NSCLC. PFS data may be more appropriate for use in certain situations, especially those in which subsequent lines of therapy exist.

PCN127

METHODS FOR INDIRECT COMPARISON OF EFFECTIVENESS IN COST-EFFECTIVENESS ANALYSES OF ONCOLOGY AGENTS: THE PROPORTIONAL HAZARDS ASSUMPTION MATTERS

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OBJECTIVES: The objective of the study was to propose an alternative indirect comparison method and compare it to the standard method. **METHODS:** In the absence of head-to-head trials, the standard method for estimating indirect relative effectiveness is to obtain an indirect hazard ratio (HR) estimate using the two HRs from the comparator trials against a common 3rd one. This method, however, is only valid if the assumption of proportional hazard (PH) holds. We proposed an alternative indirect comparison method that does not depend on the PH assumption, which consists of calculating the absolute difference between treatment arms at each two-week period in drug B trial and applying this difference to the common comparator in drug A trial to generate the adjusted curve for drug B. This was done for Progression free Survival (PFS) and Overall Survival (OS) from parametric estimates throughout the observed and extrapolated periods. Trial data for cetuximab and panitumumab in 1st line treatment of wild-type *KRAS* metastatic colorectal cancer was used to examine the PH assumption and compared the two methods for estimating the relative treatment effect between the two agents. **RESULTS:** The functional form for the PFS and OS distributions was found to be different for panitumumab versus cetuximab (Weibull shape parameter value for: PFS=1.616 versus 1.761; OS=1.314 versus 1.336, respectively). Thus, the PH assumption was violated. Panitumumab trial was set as the reference (the estimated mean PFS= 0.917 years and mean OS=2.469). Using the standard method and our proposed method, the indirectly estimated PFS and OS for cetuximab were: mean PFS 0.846 vs 0.920 years; mean OS= 2.393 versus 2.312 years, respectively. **CONCLUSIONS:** The standard methodology for indirect comparison allows easy execution. However, if the PH assumption is violated, alternative methods, such as the one proposed in this study, can be considered.

PCN128

LINKING MEDICARE, MEDICAID AND CANCER REGISTRY DATA TO STUDY BURDEN OF CANCERS IN WEST VIRGINIA (FUNDING: AHRQ - R24 HS018622-01)

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OBJECTIVES: The objective of this study was to develop a unique linked Medicare-Medicaid-WV Cancer Registry (WVCR) de-identified dataset to determine health care utilization, costs and overall burden of breast, colorectal, lung, and prostate cancers diagnosed in persons ≥ 65 years of age who live in WV and to compare them with national estimates. **METHODS:** The data linkage was performed in three phases, following process as originally described by Potosky (1993) and adapted by Bradley (2007) and Koroukian (2008). In phase one, a list of individual's ≥65 years of age with incident diagnosis of any cancer between January 1, 2002 and December 31, 2007 was extracted from WVCR data. The SSN, Sex, and Date of Birth of these individuals were sent to CMS to create a crosswalk file for these individuals to include with purchased WV Medicare data. In phase two, Medicare data were linked with WVCR data using the crosswalk file provided by CMS. In phase three, WVCR data were linked with Medicaid enrollment file data using personal identifiers. After the linkages, all identifiers were removed to create a de-identified research data set. **RESULTS:** In phase one, we identified 42,288 individuals' ≥65 years of age with incident diagnosis of any cancer from 2002 to 2007 in the WVCR data. When linked with Medicare data in the second phase, 41,575 (98.3 %) individuals were matched. In phase three, WVCR data were matched with Medicaid enrollment data for 5790 (13.7%) individuals using SSN, First Name, and Last Name; for 5860 (13.9%) individuals using SSN, Last Name, Month of Birth, and Sex; and, for 5747 (13.6%) individuals using SSN, First Name, Month of Birth, and Sex. **CONCLUSIONS:** Non-participant states in SEER-Medicare can build a powerful linked Medicare-Medicaid-Cancer Registry dataset to identify and target cancer disparities to improve outcomes in their elderly and dual-eligible citizens.

PCN129

USE OF ELECTRONIC MEDICAL RECORDS (EMR) FOR ONCOLOGY OUTCOMES RESEARCH: ASSESSING THE COMPARABILITY OF EMR INFORMATION TO PATIENT REGISTRY AND HEALTH CLAIMS DATA

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OBJECTIVES: Electronic medical records (EMRs) are used increasingly for research. Our objectives were a) to understand the utility of an EMR oncology database compared with SEER cancer registry data and Medicare and commercial claims databases and b) to identify areas for improvement in data collection, analysis, and interpretation in clinical oncology, epidemiology, and comparative effectiveness research. **METHODS:** Demographic, clinical, and treatment characteristics in the four databases were compared using six tumor types: breast, lung/bronchus, head/neck, colorectum, prostate, and NHL. Data imputation was performed using the hot-deck method; patient characteristics were compared using Cohen's effect size. We described patient and clinic inclusion criteria, treatment definitions, and purposes of each database to enable comparisons. **RESULTS:** Sex and 10-year age distributions for each tumor type were similar across datasets. The EMR oncology database had a large proportion of missing data for stage (~70%) and race (~40%), which were replaced with imputed values. There were several differences in racial composition (<15%) and ambulatory chemotherapy treatment (<30%), and modest (<10%), differences in distribution of tumor type likely due to differences in geographic distribution of included patients and clinics. Overall, Cohen's effects size analyses indicated small to medium differences (w<0.3) in patient characteristics across databases. Patients in the EMR database were more likely to receive biologics and less likely to receive hormones compared to those in the reference databases, with the largest differences (<40%) observed in prostate cancer patients, who are usually seen first or primarily by urologists. **CONCLUSIONS:** Several factors must be considered when using EMRs for oncology research purposes with a target of the US cancer population, particularly when evaluating treatment patterns. Important factors include evaluation of stage, geography, race, and medical facilities' specialization. EMR database utility might be enhanced through imputation, addition of specific physician notes (e.g., stage) and linkage to other data sources.

PCN130

RECORD-LINKAGE FOR PHARMACOEPIDEMIOLOGIC STUDIES IN CANCER PATIENTS

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OBJECTIVES: To create an overview that makes researchers aware of the available database linkages in Northern America and Europe which facilitate pharmacoepidemiologic studies in cancer patients. **METHODS:** In addition to our own database, i.e. the Eindhoven Cancer Registry (ECR) linked to the PHARMO RLS, we considered database linkages between a population-based cancer registry, that provides detailed tumor information of incident cancer cases, and an administrative healthcare database, that at least contains information on drug use and offers a longitudinal perspective on health care utilization before, during and after cancer diagnosis. Eligible database linkages should have been used in multiple published articles in English language included in Pubmed. The Cancer Research Network (CRN) in the United States was excluded from this review, as an overview of the linked databases participating in the CRN is already provided elsewhere. Researchers who had worked with the data resources included in our review were contacted for additional information and verification of the data presented in the overview. **RESULTS:** Ten database linkages met the inclusion criteria: the SEER-Medicare, cancer registry data linked to Medicaid, the British Columbia Cancer Registry and Health data, the Saskatchewan Health Plan Databases, the Scottish cancer registry linked to the Tayside drug dispensing data, linked databases in the Nordic Countries of Europe: Norway, Sweden, Finland and Denmark, and the ECR-PHARMO linkage in The Netherlands. Descriptives of included database linkages comprise population size, generalizability of the population, year of first data availability, vital status, contents of the cancer registry, contents of the administrative healthcare database, the possibility to select a cancer-free control cohort, and linkage to other health care databases. **CONCLUSIONS:** Various valuable resources of information are available to study the disease management of cancer, including treatment patterns and outcomes assessments, creating new opportunities for post-approval evaluation of anti-cancer drugs.

PCN131

REPRESENTING UNCERTAINTY IN CALIBRATED CANCER TREATMENT MODELS: A PRACTICAL APPROACH

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OBJECTIVES: Cancer treatment models are often based on progression-free survival (PFS) and overall survival (OS) data. If the model objective requires extrapolating results or exploring "what-if" scenarios, disease progression parameters are calibrated so that the model replicates the PFS and OS data. Uncertainties in the estimation of the Kaplan-Meier survival curves used as calibration targets, and in the model calibration process itself, are not commonly incorporated into sensitivity analyses. The objective of this study was to demonstrate methods for incorporating these uncertainties into probabilistic sensitivity analyses (PSA) and to explore their implications. **METHODS:** We constructed hypothetical PFS and OS survival (with censoring) for two treatments (TxA & TxB) and a corresponding three-state Markov model (Non-progressed (NP), Progressed (P), Dead (D)). Health states were assigned costs and utilities consistent with advanced cancer. Three transition probabilities for each treatment (NP->P, NP->D, P->D) were calibrated (using Excel Solver) to simultaneously fit (using mean squared deviation) the PFS/OS curves. We performed three increasingly comprehensive PSAs using second-order Monte Carlo simulation (SMCS): 1) conventional PSA including only probability distributions of costs and utilities; 2) specifying beta distributions for failure probabilities at each PFS/OS time point, simulating multiple replicates of the PFS /OS data from these distributions, re-estimating and refitting the curves for each replicate, and incorporating the resulting calibrated parameter sets into the SMCS; and 3) incorporating different curve-fitting methods by varying Solver parameters (initial values, constraints, objective function). Uncertainty in cost-effectiveness results was represented by cost-effectiveness acceptability curves (CEAC).